Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the Application.

1 to 25 (Canceled)

26. (Currently Amended) A method for repairing a defect area at the gradient junction of cartilaginous tissue and bony tissue, comprising:

providing a composite three dimensional laminate scaffold with a plurality of substantially parallel layers stacked along a first dimension of said scaffold, a first of the substantially parallel layers being a ceramic layer ~~formed~~ consisting essentially of a porous ceramic said porous ceramic defining a three dimensional structure with a first surface, a second surface distal to said first surface and a plurality of macropores therein, including a plurality of macropores extending from the second surface into the ceramic layer towards said first surface, a second of the substantially parallel layers being a polymer layer formed of a porous polymer, said porous polymer defining a three dimensional structure with a third surface and a fourth surface distal to said third surface and a plurality of micropores therein, said third surface having a plurality of ~~projections~~ extensions extending in a direction distal to the fourth surface, said plurality of extensions matingly extending into a corresponding plurality of said plurality of macropores on the second surface of said ceramic layer, a plurality of said plurality of extensions being porous and having at least one micropore communicating with a mating macropore in said ceramic layer, said mating extensions from said polymer layer being formed and matingly received in said corresponding plurality of macropores of said second surface of said ceramic layer, forming a permeable interface region,

mechanically interlocking the ceramic layer to the polymer layer, the interface region being situated between the ceramic layer and the polymer layer;

boring a receptacle space in the gradient junction at the site of the injury to receive the scaffold, the gradient junction being that of articular cartilage; and

placing and securing the scaffold in the receptacle space with the ceramic layer adjacent to the bony tissue and the polymer layer adjacent to the cartilaginous tissue, said first and fourth surfaces each having an area approximating the cross-sectional area of the scaffold taken generally perpendicular to the first dimension.

27-45 (Canceled)

46. (Currently Amended) A method for making a composite scaffold, comprising the steps of:

providing a porous ceramic body having first and second surfaces and a plurality of macropores, including macropores extending from within the ceramic body to the second surface;

preparing a polymer solution having a polymer and a solvent;

placing the second surface of said ceramic ~~layer~~ body in contact with the polymer solution;

permitting the polymer solution to infuse into a plurality of the macropores extending to the second surface to a given depth within the ceramic body;

foaming the polymer solution by lyophilization to separate the solvent from the polymer in the polymer solution to form a porous solid polymer layer with a plurality of micropores therein, attached to and extending from the second surface of the

ceramic body, the polymer layer having a plurality of porous polymer ~~projections~~ extensions extending into a corresponding plurality of the plurality of macropores on the second surface of the ceramic ~~layer~~ body into which the polymer solution was infused in the prior step, forming an interlocking interface between the ceramic body and the polymer layer, a plurality of said plurality of extensions having at least one micropore communicating with a mating macropore in said ceramic ~~layer~~ body.

47. (Currently Amended) A three dimensional composite laminate scaffold with a plurality of substantially parallel layers stacked along a first dimension, comprising

a first of the substantially parallel layers being a ceramic layer ~~formed~~ consisting essentially of a porous ceramic, said porous ceramic defining a three dimensional structure with a first surface, a second surface distal to said first surface and a plurality of macropores therein, including a plurality of macropores extending from the second surface into the ceramic layer towards said first surface,

a second of the substantially parallel layers being a polymer layer formed of a porous polymer, said porous polymer defining a three dimensional structure with a third surface and a fourth surface distal to said third surface and a plurality of micropores therein, said third surface having a plurality of extensions extending in a direction distal to the fourth surface, said plurality of extensions matingly extending into a corresponding plurality of said plurality of macropores on the second surface of said ceramic layer, a plurality of said plurality of extensions being porous and having at least one micropore communicating with a mating macropore in said ceramic layer, said mating extensions from said polymer layer being formed and matingly received in said

corresponding plurality of macropores of said second surface of said ceramic layer, forming a permeable interface region, mechanically interlocking said ceramic layer to said polymer layer, said first and fourth surfaces each having an area approximating the cross-sectional area of the scaffold taken generally perpendicular to the first dimension.

48. (Previously Presented) The scaffold of Claim 47, further including a mechanical reinforcement structure embedded in said polymer layer, said mechanical reinforcement structure selected from the group consisting of films, scrims, woven textiles, non-woven textiles, knitted textiles, braided textiles and trusses.

49. (Previously Presented) The scaffold of Claim 47, further including fillers within said polymer layer selected from the group consisting of growth factors and therapeutic materials.

50. (Previously Presented) The scaffold of Claim 47, further including living cells residing on a surface of said scaffold.

51. (Previously Presented) The scaffold of Claim 47, wherein at least one of said polymer layer and said ceramic layer is biodegradable.

52. (Previously Presented) The scaffold of Claim 47, wherein the scaffold exhibits a compositional transition from ceramic in the ceramic layer to interlocked ceramic and polymer in the interface region to polymer in the polymer layer.

53. (New) A composite laminate scaffold with a plurality of substantially parallel layers, made in accordance with the following method:

providing a porous ceramic body having first and second surfaces and a plurality of macropores, including macropores extending from within the ceramic body to the second surface;

preparing a polymer solution having a polymer and a solvent;

placing the second surface of said ceramic body in contact with the polymer solution;

permitting the polymer solution to infuse into a plurality of the macropores extending to the second surface to a given depth within the ceramic body;

foaming the polymer solution by lyophilization to separate the solvent from the polymer in the polymer solution to form a porous solid polymer layer with a plurality of micropores therein, attached to and extending from the second surface of the ceramic body, the polymer layer having a plurality of porous polymer projections extending into a corresponding plurality of the plurality of macropores on the second surface of the ceramic body into which the polymer solution was infused in the prior step, forming an interlocking interface between the ceramic body and the polymer layer, a plurality of said plurality of extensions having at least one micropore communicating with a mating macropore in said ceramic layer.